Technology Offer

Simple wireless rececording microphone

Summary

A Serbian firm offers a know-how in the design of cutting-edge consumer electronics devices, particularly in the design of software and hardware for embedded devices. The main advantage of this approach is integration of high quality condenser microphone capsule and complete electronics for audio recording, Bluetooth and USB connectivity.The firm is looking for partners for Commercial Agency Agreement with technical assistance.

Expiration Date 07 April 2017
Reference TORS20150121001
Profile link

Details

Description

The technology enables creating high quality microphone, made to be used with ease, without cables and complicate equipment set ups. It possesses capability to stream encoded audio files towards iOS devices via wireless, Bluetooth connection, as soon as it records it. Furthermore, it has internal memory for storing up to 180 hours of MP4 or 16 hours of Waveform Audio File Format audio. It is mobile device, powered with rechargeable battery which provides it with 5 to 7 hours of autonomy. The device has USB interface for transferring of data between microphone internal memory and PCs. It can act as USB microphone, too.
The firm is looking for partners for Commercial Agency Agreement with technical assistance.

Advantages and Innovations

The main advantages of the technology are:
• High quality due to 1 inch capsule and designed electronic board to support it
• Smart gain feature
• Bluetooth streaming capability
• Ease of use
• Stores raw high-quality audio (96kHz/24bit) in the internal memory, as well as advanced audio coding encoded audio signal
• USB storage device and USB microphone

Stage of Development

Available for demonstration

IPR Status

Design Rights

Keywords

Technology

01002003	Electronic engineering
01002004	Embedded Systems and Real Time Systems
01002009	Peripherals Technologies (Mass Data Storage, Displays)
01006009	Signal Processing
01006011	Description to Sound and Music Computing

Market

01006003	Streaming
01006005	Other communications (not elsewhere classified)
02006004	Data processing, analysis and input services
02007005	Communications/networking

NACE

J.59.2.0	Sound recording and music publishing activities
J.61.2.0	Wireless telecommunications activities
J.62.0.1	Computer programming activities

Open for EOI : Yes

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Languages Spoken

English
Serbian

Client Country

Serbia

Partner Sought

Type and Role of Partner Sought

Potential partners should be companies or R&D institutions from the field of Electronics, IT and Telecommunications, in particular: Audio technologies, Wireless Communication, Signal Processing,
Embedded Systems and Real Time Systems.
The research institute is looking for partners for commercial agreement with technical assistance in order to provide adaptation of their technology to specific needs.

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Commercial agreement with technical assistance

Technology Offer

Context-based human activity recognition using a single wearable sensor

Summary

Slovenian researchers are offering a software solution that uses a single wearable sensor to recognize user's activity by exploiting the context of the current activity. The technology is usefull in mobile computing, sport, elderly, medical rehabilitation and other human activity related applications. Companies interested in licencing in the technology and research partners interested in further joint development of the technology through research or technical cooperation agreements are sought.

Expiration Date	24 July 2017
Reference	TOSI20150624001
Profile link	

Details

Description

The presented approach recognizes the user's activity by exploiting its context provided by sensor data. In order to accurately recognize the current activity, the approach uses not only the data segment for that particular activity, but also the context of the current activity, i.e., the data segments before and after the current activity.

Accurate activity recognition may have many technical effects. For example, if an intelligent system installed at a subject's home (i.e., smart home) is aware of the subject's activity, it may adapt to his/her needs. For example, if the subject is sitting and watching TV in the living room and the lights are on in the kitchen, the system may first adjust the temperature in the living room and then turn the lights off in the kitchen. Furthermore, detection of a fall activity can automatically trigger an emergency phone call. Regarding the sensor's battery life, which is limited, a detection of static activity, i.e. sitting or lying posture, may put the sensor in an idle state, and, consequently, contributes to a longer battery life.

A typical application of the offered approach would be activity-recognition system that uses a single accelerometer placed on the torso. Related approaches that recognize the activities by analyzing only a single data segment (the current one) are failing in distinguishing two of the most common activities - standing and sitting. The approach overcomes this issue by additionally analyzing the context of the current data segment. That is, it includes the segments before and after the activities. Using all these segments, it extracts multiple features (variables) that represent the context information. In the next step, each of these features is used as a context individually, for which multiple classification models are learned. Therefore, when a new activity is recognized, it is evaluated by multiple classification models, each model corresponding to the context of the user.

In order to illustrate the main idea of the approach, suppose there is an activity sequence consisting of: walking, transition down, sitting. The current activity of the user that needs to be

recognized is sitting. The data segments for the sitting and the standing are similar; therefore a method that analyzes only the sitting segment would have problems distinguishing them. However, because the method analyzes the transitions and activities before the sitting, it would successfully recognize the sitting.

The researchers are looking for companies interested in licencing in the technology for implementation of the technology in their products and services. The companies should have the focus on, and capacity for, industrial-scale production in the area of mobile applications, security, smart home, sport/elderly/medical applications, sensor hardware development and/or sensor software development and other areas where context based human activity recognition might be implemented.

Research partners from universities / research institutions, interested in further joint development of the technology and implementation of the technology in the above mentioned areas through research or technical cooperation agreements are also sought. Their focus should be on research in the field of ambient intelligence, elderly support, eHealth and other areas where context based human activity recognition might be implemented.

The authors of the system are members of the largest research institute in Slovenia. They are internationally recognized experts in the fields of ambient intelligence, machine learning and data mining, language and speech technologies, computational intelligence and agent and multiagent systems. Their activity-recognition technology, which uses wearable accelerometers, has won the international EvAAL competition (Evaluating AAL Systems through Competitive Benchmarking).

Advantages and Innovations

While using accelerometers to measure human activity has been attempted before, the invention presents a method that improves upon related work by a unique characteristic to operate using the context of the subject's activity.

Recent research and activity recognition applications (AR) show that wearable accelerometers are the most suitable for unobtrusive recognition of basic activities (sitting, standing, walking, running and similar). Furthermore, one of the best accelerometer placements for AR – and even more so for the applications built on top of AR, such as fall detection and human energy-expenditure estimation – is on the torso (chest or abdomen). However, two very common activities – sitting and standing – are difficult to recognize with such a placement and are usually mutually misrecognized and almost impossible to distinguish using standard AR approaches. The reason is that they do not differ in the torso orientation, so distinguishing them with a single accelerometer placed there is challenging.

The context-based approach overcomes this problem by including the context of the current activity, i.e., it analyzes the data segments before and after the current activity. Current methods are more obtrusive by including more than one accelerometer and do not take the context into account. The approach is innovative and less obtrusive because it can accurately recognize the user's activities by using a single accelerometer placed on the torso.

Stage of Development

Prototype available for demonstration

IPR Status

Secret Know-how,Patent(s) applied for but not yet granted,Exclusive Rights,Copyright

Keywords

Technology

01003003	Artificial Intelligence (AI)
01004001	Applications for Health

Market

02007016	Artificial intelligence related software
05003001	Therapeutic services
05007004	Monitoring equipment
07001007	Other leisure and recreational products and services

NACE

M.72.1.9	Other research and experimental development on natural sciences and engineering

Open for EOI : Yes

Dissemination

Send to Sector Group

ICT Industry and Services

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Client Country

Slovenia

Partner Sought

Type and Role of Partner Sought

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implemented.

Partners from universities / research institutions, interested in further joint development of the technology through research or technical cooperation agreements, are also sought, the focus being on research in the field of ambient intelligence, elderly support, eHealth and other areas where human activity recognition might be implemented.

Type and Size of Partner Sought

SME 11-50,University,R&D Institution,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Technical cooperation agreement
Research cooperation agreement